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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,008	03/21/2002	Cheol-Hyun Han	A-68450/MSS	4635

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EXAMINER

ALANKO, ANITA KAREN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,008	HAN ET AL.	
	Examiner	Art Unit	
	Anita K Alanko	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-21 is/are allowed.
- 6) ☒ Claim(s) 1,3-5,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 2 and 6-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al (US 4,783,821 A) in view of Jerman (US 5,209,118 A), Ladabaum et al (US 5,870,351 A) and Loeppert (US 5,490,220 A).

Muller discloses a diaphragm transducer and a method of making a diaphragm transducer comprising:

providing a silicon substrate 27 and depositing layers of a bottom conductive layer polysilicon 25, silicon oxide 23, zinc oxide 21, silicon oxide 29 and a top conductive layer of aluminum 24;

depositing a layer of silicon nitride as a diaphragm 22;

patterning contact holes to the bottom and top conductive layers (col.8, line 38, "step 15");

releasing the diaphragm by removing portions of the silicon substrate by backside etching (col.6, lines56+, "step 5").

Muller does not disclose to deposit backside silicon nitride on the substrate. Rather, Muller discloses to use a photoresist as an etch mask. However, it is conventional in the art to use silicon nitride as an etch mask for etching silicon. Therefore, it would have been obvious to one with ordinary skill in the art to use silicon nitride for the backside etch mask because its use

is conventional in the art for etching silicon.

Muller does not disclose to use an insulating layer of parylene. Ladabaum et al teaches that silicon oxide and parylene are alternative insulating materials (see claims 3 and 4). It would have been obvious to one with ordinary skill in the art to use parylene in place of silicon oxide in the method of Muller because Ladabaum teaches that they are known alternative insulating materials.

Muller does not disclose to use parylene as the diaphragm material. Rather, Muller discloses to use silicon nitride as the diaphragm. Jerman teaches that in transducer applications, that it is known that diaphragms can be formed of silicon nitride or parylene (col.7, lines 1-5). The choice depends on the application and device characteristics sought. Therefore, it would have been obvious to one with ordinary skill in the art to use parylene as the diaphragm in the method of Muller because Jerman teaches that they are known alternative diaphragm materials.

Muller discloses to use polysilicon as the bottom conductive layer, not aluminum. Loeppert teaches that polysilicon and aluminum are known alternative conductive materials (col.3, lines 41-45). It would have been obvious to use aluminum as the bottom conductive layer in the method of Muller because Loeppert teaches that aluminum and polysilicon are known alternative conductive materials.

Allowable Subject Matter

Claims 2, 6-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-21 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 703-305-7708. The examiner can normally be reached on Monday, Tuesday and Friday, 8:00 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 703-305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Anita K. Alanko

Anita K Alanko
Primary Examiner
Art Unit 1765